COOPER Tools

Operation & Service Manual
823200 **1/02**

Quackenbush®

158QGDA-15RAB-SU-RS
RIGHT ANGLE DRILLS

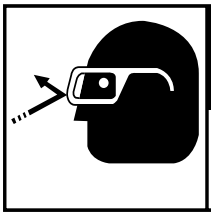
Houston Operation
7007 Pinemont
Houston, TX 77040

Recoules Operation
Zone industrielle - B.P. 28
Avenue Maurice Chevalier
77831 Ozoir-la-Ferriere Cedex France

Safety Recommendations

For your safety and the safety of others, read and understand the safety recommendations and operating instructions.

Always wear protective equipment:



⚠ WARNING

Impact resistant eye protection must be worn while operating or working near this tool.

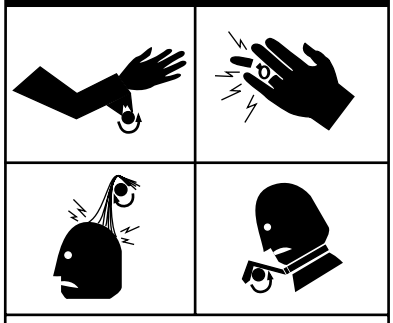
For additional information on eye and face protection, refer to Federal OSHA Regulations, 29 Code of Federal Regulations, Section 1910.133., Eye and Face Protection, and American National Standards Institute, ANSI Z87.1, Occupational and Educational Eye and Face Protection. Z87.1 is available from the American National Standards Institute, Inc., 11 West 42nd Street, New York, N.Y. 10036.

⚠ CAUTION

Personal hearing protection is recommended when operating or working near this tool.

Hearing protection is recommended in high noise areas, 85 dBA or greater. The operation of other tools and equipment in the area, reflective surfaces, process noises and resonant structures can substantially contribute to and increase the noise level in the area. For additional information on hearing protection, refer to Federal OSHA Regulations, 29 Code of Federal Regulations, Section 1910.95, Occupational Noise Exposure, and American National Standards Institute, ANSI S12.6, Hearing Protectors.

⚠ WARNING



Do not wear loose fitting clothes, long hair, gloves, ties or jewelry.

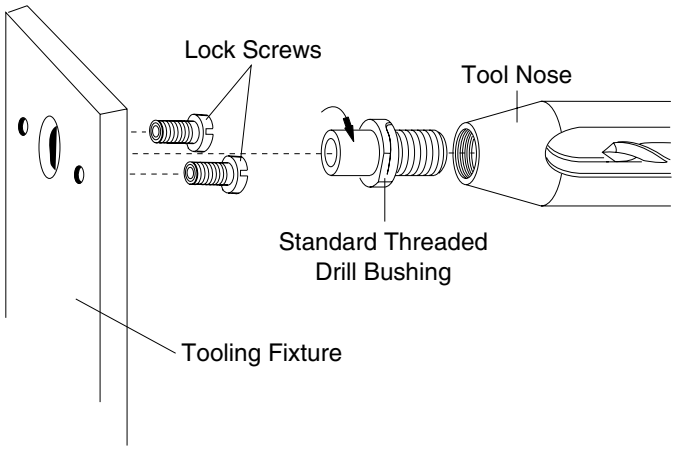
Follow good machine shop practices. Rotating shafts and moving components entangle and entrap, and may result in serious injuries. Never wear long hair, loose-fitting clothes, gloves, ties, or jewelry when working with or near a drill of any type.

⚠ CAUTION

- Quackenbush drills are designed to operate on **90psig (6.2 bar) air pressure**. Excessive air pressure can increase the loads and stresses on tool parts and drills, and may result in breakage. The installation of a filter-regulator-lubricator in the air supply line is highly recommended.
- Before removing a tool from service or changing drill bits, make sure the air line is shut off and drained of air. This will prevent the tool from operating if the throttle is accidently engaged.
- Cutting tools used with these Quackenbush drill motors are sharp. Handle them carefully to avoid injury.

⚠ CAUTION

Before mounting any positive feed drill, check the lock screws in the tooling fixture and drill bushing. Make sure both are in good condition and securely tightened.



Positive feed drills can exert high torques and high thrust loads. If failure of the lock screws or drill bushing occurs, the drill may suddenly spin and back away from the drill fixture.

Warning Labels

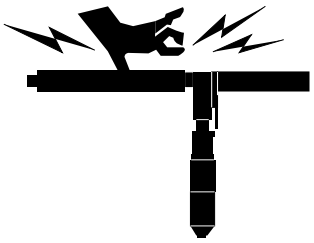
The warning labels found on these tools are essential parts of this product. Labels should not be removed. Labels should be checked periodically for legibility. Replace warning labels when missing or when the information can no longer be read. Replacement labels can be ordered from the manufacturer.

Safety Recommendations

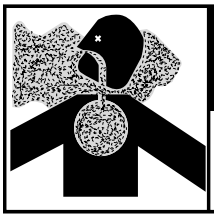
⚠ CAUTION

The spindle on right angle positive feed drills retracts at a much faster rate than it feeds. Care should be taken to avoid entrapment. Nose pieces usually used with these drills are generally slotted for visibility and access to chuck, cutter, and retract stop adjustments. A spindle guard should be used when operating tool. Spindle guards in one inch increments are available to accommodate any length spindle. Slotted spindle guards are available for tools with fluid swivels.

⚠ WARNING



Keep hands and fingers away from slot in spindle guard and nose piece when handling or operating tool.



⚠ WARNING

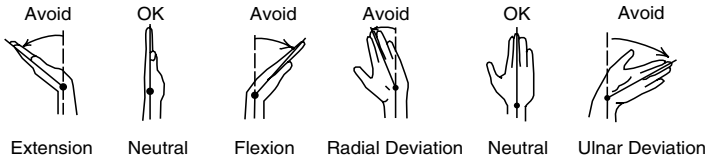
Wear respirator where necessary.

Drilling or other use of this tool may produce hazardous fumes and/or dust. To avoid adverse health effects utilize adequate ventilation and/or a respirator. Read the material safety data sheet for any cutting fluids or materials involved in the drilling process.

⚠ WARNING

- Most dusts are combustible. See material safety data sheets for combustibility of a specific dust.
- Non ferrous metal dusts are particularly haxardous.
  Examples: Aluminum, Magnesium, Titanium, Zirconium
  (Never collect Magnesium in a dry dust collector)
- Never collect spark generating material in the same dust collector with combustible material.
  Examples: Collecting both Steel and Aluminum dust or Steel and Titanium dust.
- Never use flamable finishing lubricants.

Some individuals are susceptible to disorders of the hands and arms when exposed to tasks which involve repetitive work motions. Those individuals predisposed to vasculatory or circulatory problems may be particularly susceptible. Cumulative trauma disorders such as carpal tunnel syndrome and tendinitis may be caused or aggravated by repetitious, forceful exertions of the hands and arms. These disorders develop gradually over periods of weeks, months, and years.



- **Tasks should be performed in such a manner that the wrists are maintained in a neutral position, which is not flexed, hyperextended, or turned side to side.**

- **Stressful postures should be avoided and can be controlled through tool selection and work location.**

Any tool operator should be aware of the following warning signs and symptoms so that a problem can be addressed before it becomes a debilitating injury. Any user suffering prolonged symptoms of tingling, numbness, blanching of fingers, clumsiness or weakened grip, nocturnal pain in the hand, or any other disorder of the shoulders, arms, wrists, or fingers is advised to consult a physician. If it is determined that the symptoms are job related or aggravated by movements and postures dictated by the job design, it may be necessary for the employer to take steps to prevent further occurrences. These steps might include, but are not limited to, repositioning the workpiece or redesigning the workstation, reassigning workers to other jobs, rotating jobs, changing work pace, and/or changing the type of tool used to minimize stress on the operator. Some tasks may require more than one type of tool to obtain the optimum operator/tool/task relationship.

The following recommendations will help reduce or moderate the effects of repetitive work motions. The operator of any drill should:

- Use a minimum hand grip force consistent with proper control and safe operation
- Keep body and hands warm and dry
- Avoid anything that inhibits blood circulation
  - — Smoking Tobacco
  - — Cold Temperatures
  - — Certain Drugs
- Avoid awkward postures
- Keep wrists as straight as possible
- Interrupt work activities, or rotate jobs to provide periods free from repetitive work motions.

OPERATING & SERVICE INSTRUCTIONS

The tool is designed to operate on 90 psig air pressure using a 1/2 inch I.D. hose up to 8 feet in length. If additional length is required, a 5/8 inch I.D. or larger hose should be connected to the 1/2 inch hose.

NOTE: Safety Labels can be ordered using part no. 202691.

The tool is started by turning the trigger 613697 to the on position.

The feed cycle is started by pushing the retract lever 622973 down. The spindle may be controlled by the Automatic Stop or it may be manually retracted at any point by pulling the retract lever up. Rapid retraction of the spindle takes place while the spindle continues to rotate.

NOTE: The Gear Stop 622985 can be adjusted by turning the two 1/8" hex set screws 867502 on either side of the angle head.

Before installing or removing a cutting tool, or accessory, be sure the tool is disconnected from the air supply. If the air supply line has a valve, shut the valve off and bleed off the air in the line.

LUBRICATION

An automatic in-line filter-regulator-lubricator is recommended as it increases tool life and keeps the tool in sustained operation. The in-line lubricator should be regularly checked and filled with a good grade of 10W machine oil. Proper adjustment of the in-line lubricator is performed by placing a sheet of paper next to the exhaust ports and holding the throttle open approximately 30 seconds. The lubricator is properly set when a light stain of oil collects on the paper. Excessive amounts of oil should be avoided.

STORAGE

In the event that it becomes necessary to store the tool for an extended period of time (overnight, weekend, etc.), it should receive a generous amount of lubrication at that time and again when returned to service. The tool should be stored in a clean and dry environment.

GENERAL

Clamp the tool lightly on the flats of the motor housing in a soft jawed vise and unscrew the drill head from the power unit.

POWER UNIT

To remove the motor unit from the motor housing, invert the tool in the vise. Loosen the handle nut 613283 and remove the handle. The complete motor unit may now be slipped out through the rear of the motor housing. Unscrew the governor (Left Hand Threads) and remove the rear bearing plate 613241 from the shaft. Remove the rotor shaft retainer 843618 and using a soft mallet tap the rotor shaft out of the front rotor bearing 613248. This will allow the front bearing plate 613273, the cylinder 613225, rotor blades 613236, and the rotor 613234, to be removed. Remove the two (2) keys 863365, from the rotor shaft 624294, and clamp it in the vise with the governor up. To remove the front rotor bearing from the front bearing plate for inspection, the rotor bearing retainer 613294, (Left Hand Treads) must be unscrewed first.

DISASSEMBLY AND REASSEMBLY DRILL HEAD

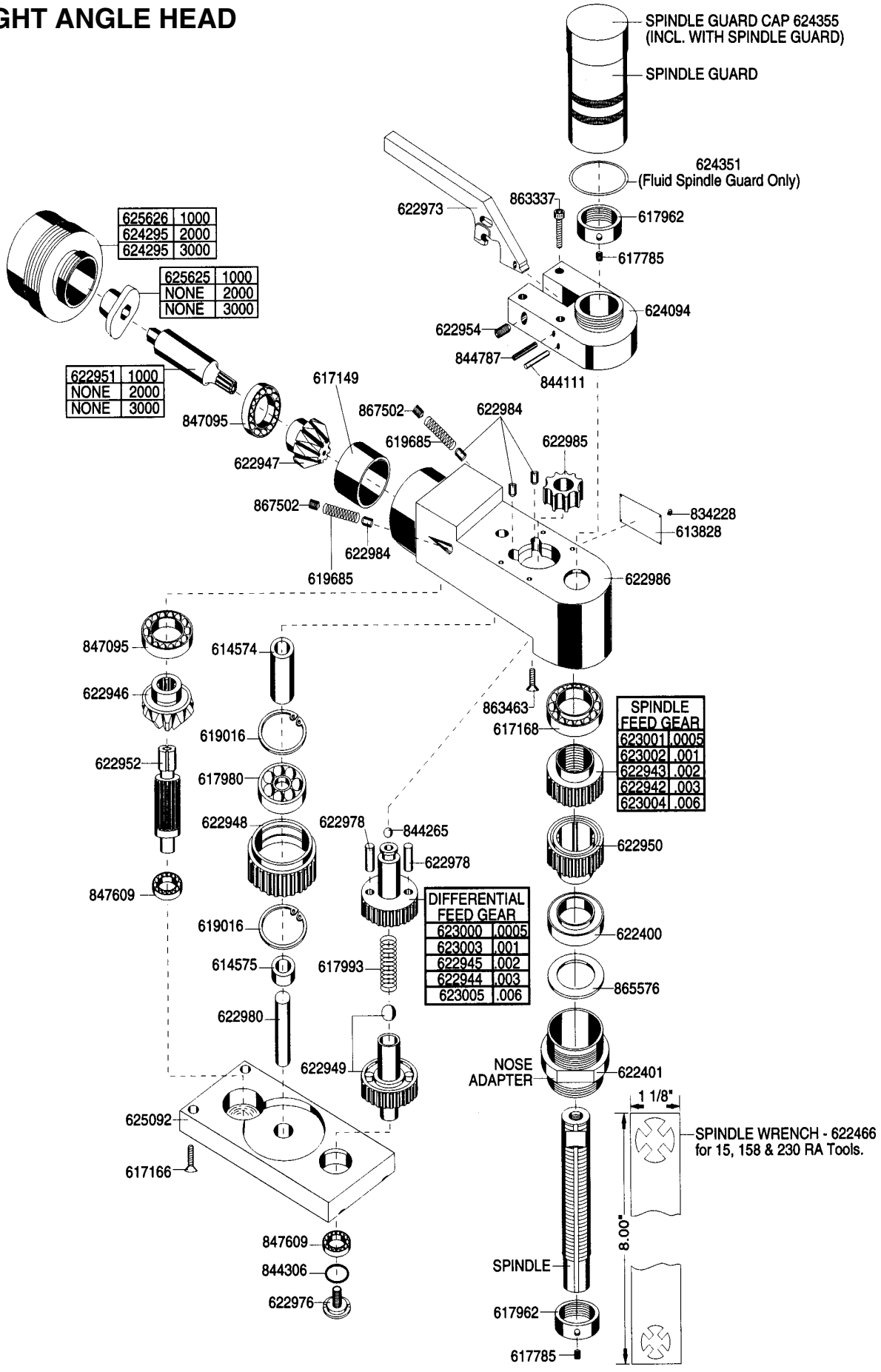
Unscrew (Left Hand Threads) and remove the drill head from the power unit To disassemble the drill head slip the spacer 617149 out of the rear of the head. This will allow the ball bearing No 847095 and bevel gear 622947 to be removed.

Unscrew the four (4) retract body screws 863337 and remove the retract body 624094 and attached components. Loosen the stop collar screw 617785 and unscrew the stop collars 617962 (Left Hand Threads). Removing the nose adapter (Left Hand Threads) will allow the spindle and attached parts to be removed from the drill head.

Unscrew the four (4) cover screws and remove the cover 625092 and attached parts. The drill head is reassembled in the reverse order of disassembly. All parts should be carefully inspected for evidence of wear. Damaged or worn parts should be replaced where necessary. As all of the various gears and bearings are being assembled they should be coated with a generous amount of LUBRIPLATE #907 GREASE. When installing the bearing 617168, the ball loading notches should be facing up.

During reassembly be sure that the rotor shaft 624294 is engaged in the drill head.

RIGHT ANGLE HEAD



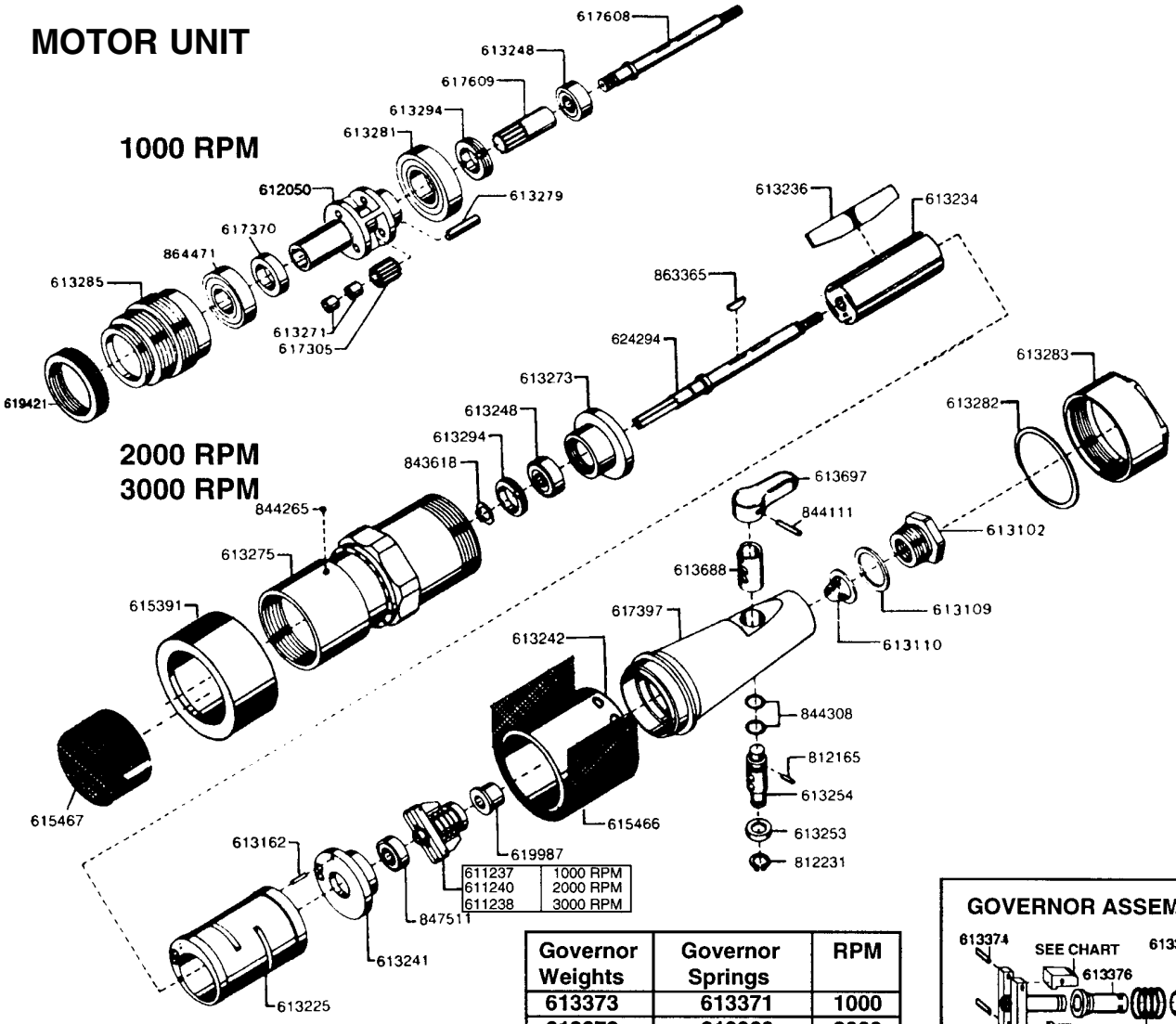
PART LISTS — DRILL HEAD

PART NO.	NAME OF PART	QUANITY
613828	Name Plate	1
614574	Idler Gear Spacer (Long)	1
614575	Idler Gear Spacer (Short)	1
617149	Spacer	1
617166	Flat Head Screw (6/32" x 5/8")	2
617168	Feed Gear Ball Bearing	1
617785	Stop Collar Set Screw	2
617962	Stop Collar	2
617980	Ball Bearing	1
617993	Spring	1
619016	Retainer Ring	2
622400	Ball Bearing	1
622401	Nose Adapter	1
622946	Driven Bevel Gear	1
622947	Driving Bevel Gear	1
622948	Idler Gear	1
622949	Differential Drive Gear	1
622950	Spindle Drive Gear	1
622952	Pinion & Shaft	1
622954	Ball Plunger	2
622973	Retract Lever	1
622976	Drive Gear Retainer Screw	1
622978	Dowel Pin	2
622980	Idler Gear Shaft	1
622984	Clutch Roller	4
622985	Gear Stop	1
622986	Housing	1
623000	.0005" Differential Feed Gear (34T)	1
623001	.0005" Spindle Feed Gear (37T)	1
623002	.001" Spindle Feed Gear (43T)	1
623003	.001" Differential Feed Gear (40T)	1
624094	Retract Body	1
624295	Angle Head Adapter	1
624351	Fluid Spindle Guard Shims (.010")	1
624355	Spindle Guard Cap**	4
625092	Cover	1
834228	Drive Screw	2
842161	Steel Ball (3/16")	1
844111	Lever Pin	1
844247	Roller Spring	2
844265	Steel Ball (1/8")	1
844306	"O"-Ring 5/16" x 7/16"	1
844787	Roll Pin	1
847095	Bevel Gear Ball Bearing	2
847430	Drive Gear Needle Bearing	1
847609	Pinion Shaft Ball Bearing	1
863337	Socket Head Cap Screw	4
863463	Flat Head Screw (6/32" x 3/8")	2
865576	Thrust Race	1
867502	Set Screw	2

**Included with Spindle Guards

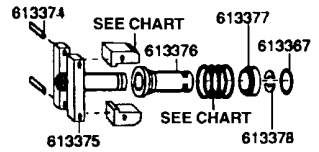
Drill Head Assemblies	
Feed	**Code No.**
.0005"	**631242**
.001"	**631240**

MOTOR UNIT



Governor Weights	Governor Springs	RPM
613373	613371	1000
613372	613368	2000
613372	613370	3000

GOVERNOR ASSEMBLIES



PART NO.	NAME OF PART	QTY.	PART NO.	NAME OF PART	QTY.
613102	Hose Adaptor	1	613374	Governor Weight Pin	2
613109	Gasket	1	613375	Governor Spider	1
613110	Screen	1	613376	Governor Valve	1
613162	Cylinder Pin	1	613377	Governor Spring Cap	1
613225	Cylinder	1	613378	Governor Spring Retainer	1
613234	Rotor	1	613688	Throttle Valve Bushing	1
613236	Rotor Blade	4	613697	Trigger	1
613241	Rear Bearing Plate	1	615391	Exhaust Deflector	1
613242	Sleeve	1	615466	Wire Screen (Inner)	1
613248	Front Rotor Bearing	1	615467	Wire Screen (Outer)	1
613253	Throttle Valve Washer	1	617397	Backhead (Incl. 613688, 619987)	1
613254	Throttle Valve (Incl. 812165)	1	619987	Governor Jet	1
613273	Front Bearing Plate	1	624294	Rotor Shaft	1
613275	Motor Housing	1	812165	Stop Pin	1
613282	Clamp Ring	1	812231	Retainer Ring	1
613283	Handle Nut	1	843618	Retainer Ring	1
613294	Bearing Retainer Nut	1	844111	Trigger Pin	1
613367	Retainer Ring	1	844265	Steel Ball (1/8")	2
613368	Governor Spring	1	844308	"O" Ring 3/8" X 9/16"	2
613372	Governor Weight	2	847511	Rear Rotor Bearing	1
			863365	Rotor Shaft Key	2

The complete backhead can be purchased as subassembly using the following part number: 611185

COOPER Tools

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